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An Essay on debility.

By
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Of Georgia.
1827

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Essay on Debility.

Perhaps there is no situation in which a student of medicine can be placed, when he will be so incon-stant, and unsettled in his opinions, as that he occupies when about to write a medical thesis - Being at the threshold of the profession, he feels incompetent to throw his mite of original matter to the great bulk of medical information, and is compelled to encompass the ideas of men who have gone before him, and place them before those who were familiar with them long since, and who have digested them again, and a-gain, or erect a fabrick upon a ground-work of speculation, which must fall before the scrutinizing touch of the pro-

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fessor. Impressed with feelings like these, I cannot but approach my subject with diffidence.

Individuals in the pursuit of truth, are too often misled by an ardent but honest zeal, and while they too cautiously avoid the errors of others, fall themselves into those equally absurd. The medical science has assumed new forms, and presented new aspects, according as the opinions of different influential individuals have prevailed. Theories, supplanting theories, to be themselves supplanted, by old notions in new forms. Debility, which has been considered the cause of many diseases, is fast travelling the way to oblivion, and perhaps will ere long

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lie entombed with things forgotten. Some have already affirmed that it is neither itself a disease, nor a predisposing cause to disease. As all agents capable of producing disease (say they,) are stimuli in their action upon the living system, and as disease is nothing more than an altered action, the stronger action will prevail in the system, and the disease must consequently consist in an action preternaturally strong. These are the premises upon which the theory is founded, which affirms that debility has no share in the production of disease. As my views concerning it are by no means coincident with the views of those

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who abet this theory, I shall offer a few remarks concerning it.

Let us view the premises from which this theory has been deduced. It is affirmed that all agents capable of producing disease are stimuli, and consequently all disease must consist in an increased action. Though the first part of this proposition cannot be disproved, yet it is neither so satisfactorily established to my mind as to be indubitable. And if it be conceded that all substances are stimuli, I think that we are by no means irresistibly drawn to the conclusion that they must produce diseases of increased action. In the first place let us enquire whether all agents capable of producing disease, are stimuli?

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Digitalis when taken into the stomach will produce disease, the question then arises whether it operates as a stimulant or not? What are the symptoms attending its administration? When taken in the most moderate doze, it tends directly to diminish the force and frequency of the pulse, in a large doze it demenishes it to a great extent, as from seventy, to forty, or thirty-five, in a minute, occasioning at the same time, vertigo, indistinct vision, violent, and durable sickness, coldness of the whole body, insensibility, and death. Now it is affirmed that this medicine in its action upon the living system is a stimulant. What symptoms in the list above mentioned induce us to

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believe that it is a stimulant? Is it the coldness of the body? the greatly diminished vascular action? or the insensibility of the whole system? Neither of these surely, tend in the smallest degree, to induce the belief, that digitalis acts as a stimulant. But here I am told that these are secondary effects, and that the substance must have acted primarily as a stimulant. Be it so; but was this excitement the cause of the succeeding debility? I must confess my incredulity upon this point, but incline more to the opinion that the article when first taken in, made an impression upon the stomach greatly depressing its natural action, and extending itself by sympathy to the heart and arterial system.

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Had the impression been less in degree, there would have been a speedy reaction, but being too powerful to be resisted by the energies of the system, direct, and complete prostration was the consequence. It is not I think a fair inference, that the debility (or disease) was the effect of the stimulation, (allowing that digitalis stimulates before it causes depression) because it was preceded by it, for they are not at all commensurate with each other, but it appears more reasonable to conclude, that the disease is rather the consequence of an incapacity of the system, or the part affected, to bring about a vigorous and salutary reaction, and not the consequence of an excitement so feeble and inconsiderable. It is this principle of

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reaction, which sustains the system uninjured, amidst surrounding objects. As it has been justly said, "there is a continual warfare between living and dead matter, each endeavouring to bring the other, to its own state of existence.

Cold has a tendency directly to weaken and depress ~~that~~ the action of that part of the system with which it comes in contact. If the degree be intense, and the time sufficiently long, it will destroy the vitality of the part, and no subsequent reaction will ensue; but if the degree be moderate, and the duration less, then the parts will experience only a temporary debility, and their weakened energies will be aroused by the stimulus of associated action, causing them to perform

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their functions more vigorously, while the reaction exists. So it would seem to be with every other application which can be made to living matter, all tending to depress the natural action.

But the depression occasioned by many substances is so inconsiderable, that the system reacts speedily, and rises above the impression so instantaneously, that we are deceived as regards their operation, and pronounce them stimuli. Alcohol when taken into the stomach in a moderate quantity elicits action, but this it may do by first arresting the natural action, by its own peculiar impression, and the reaction of the system, endeavouring to remove the impression, presents us with the phenomena of increased action.

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It is hard to believe that the mere change of the proportion, (the qualities of the alcohol, and the situation of the system, being exactly the same,) can so completely change its action, as to produce effects diametrically opposite.

But we are certain that by a considerable increase ~~xxxxxx~~ of the quantity, we shall perceive nothing like stimulation, but directly the reverse, the individual falling and expiring as soon, as if his heart had been transfixed by a sword. When a disease is planted in any part of the system, ~~the xxxxxx~~ ~~of~~ nature contends against it, and endeavours to re-establish her dominion, this she will frequently establish, but when a powerful innovator suddenly assails her, in

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her sober, and harmonious operations, she revolts, and unable longer to keep in motion the wonderful machinery, the phenomena of life suddenly cease. The experiments of W. Philip in his inquiry into the laws of the vital functions, go far to prove, that inflammation arises from debility in the capillary vessels. The opinion of Mr Hunter was, that inflammation depended upon an increased action in the vessels of the inflamed part, by which the fluids were circulated with an increased velocity, keeping up thereby an unnatural excitement. But this opinion is invalidated by its incompetency to account for the swelling, and distention, of the

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vessels, in the inflamed part. For if the vessels in this part act with augmented energy, then we must suppose, that there would not be more blood contained in them than there is under ordinary circumstances, but less; and that the velocity ~~of~~ of the circulation in the inflamed part, and the quantity of blood contained by its vessels, would always bear an inverse ratio to each other. Moreover it is a fact well known that whenever by a ligature, or long continued pressure, the circulation in a part is much impeded, it is seen to give rise to inflammation.

The experiments of W. P. tending to prove that inflammation depends upon debility of the capillaries, were made both on cold, and warm-blood-

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ed animals. The inflamed web of a frogs foot was brought before a microscope, and it was seen, that when the inflammation was greatest, the circulation was slower, and in some parts which were highly inflamed, the circulation was scarcely carried on at all. The tail of a fish was also made the subject of experiment, and with the same result. The mesentery of a rabbit was inflamed, and as soon as the inflammation commenced the vessels began to enlarge, and the motion of the blood became more, and more languid, until its motion was imperceptible. He says "I repeatedly occasioned debility of the capillaries of different parts of the mesentery, by irritating them, and there saw inflam-

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Hence we conclude that every agent capable of producing debility in the capillary vessels, whether mechanical, or chemical, may produce inflammation, and we believe without this debility, inflammation cannot supervene, and if it exist, will disappear as soon as the vessels regain their tone.

If the equilibrium of the circulation be destroyed by exciting to greater action some part of the vascular system, the other parts retaining their vigour, the system cannot sustain injury from the excitement, if debility be not the consequence. Different individuals exposed to the influence of the same cause, may be affected in various ways. While one

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may have hepatitis from exposure to a hot sun, another may have bilious fever, a third dysentery, owing to the particular parts being less able to resist the debilitating influence of the cause to which they were exposed. In the last disease the question has been agitated, whether the bloody mucous discharges arose from an increased action in the capillaries of the alimentary canal, or a diminished action in them? As there is in dysentery a phlogosed state of the mucous membrane of the intestines, I am induced to believe, that it is at least sometimes, dependant upon debility. The mouths of the absorbents wherein lies their vis insita, to take up particular substances, becoming debilitated, incapacitates them to perform their func-

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tion at all, or, but in a very feeble manner: but though the exhalents have a corresponding debility in those parts immediately contiguous to the internal surface of the alimentary canal, they will not lose their function entirely; but becoming relaxed, and patulous, ~~and~~ serve as passive conductors, to the imperfectly elaborated fluid, sent through them by a vis a tergo, and thus destroy~~ing~~ the equilibrium between the absorbent, and exhalent systems, giving rise to dysentery. May not dropsy, the operation of cathartics, Clisters &c, be all explicable upon the same principle? Fever also appears to depend upon local debility, and the excited pulse attending it originating from the efforts of the vis medicatrix naturæ, to relieve

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the debilitated parts, whether they be in the skin, stomach, or elsewhere.
The views which I have taken of these diseases, might lead to the supposition that the treatment would consist in the administration of such remedies, as tend to keep up the excitement, and thereby endeavour to relieve the debility, but the great disparity of strength between the healthy, and diseased parts, would on the addition of new excitement to the general circulation, cause the already debilitated and distended capillaries to be further exhausted, and thereby increase the disease that we attempted to remedy.

With these remarks gentlemen which I offer you, more as speculation, than as confirmed opinions, I submit the essay to your inspection.

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